

ABSTRACT

Currently, energy monitoring activities in Indonesia are still carried out manually, for gas, electricity and water. However, there is a weakness in manual monitoring, namely the data cannot be processed in real time. In checking the data, the officer must come directly to the location to collect the data. To reach the destination, it takes time according to the distance traveled. And on average, areas outside Java have access that is quite difficult to reach. The long distance and difficulty of accessing the location will make energy data collection hampered and take a long time. This not happen if the energy data can be viewed and processed in real time. Therefore, Advanced Metering Infrastructure (AMI) based on Narrow Band IoT can be a technology to overcome these problems.

This final project research is applied in the city of Padang as one of the urban areas in Indonesia. Planning is done using the Narrow Band Internet of Things (NB-IoT). NB-IoT is a network technology with the use of low frequency bands and low costs. Smart metering is an application that has the potential to use the NB-IoT network. In this study, the development of the NB-IoT network is carried out on Smart Metering with coverage and capacity calculations.

After the calculations and simulations are carried out, the next step will be the calculation of techno-economics. This calculation can be used as a benchmark to test the feasibility of whether NB-IoT on Smart Metering is suitable for use or not. Through techno-economics, it can be seen how the impact of implementing NB-IoT on Smart Metering will be, whether it will bring profits or losses in the future.

Keywords: Smart Metering, NB-IoT, Internet of Things, Urban Area, Techno-Economic, Techno-Economic Method, Cost-Benefit Method.